

H-204604

METHOD OF PRODUCING THERMALLY SPRAYED
METALLIC COATING WITH ADDITIVES

ABSTRACT OF THE DISCLOSURE

The cylinder walls of light metal engine blocks are thermally spray coated with a ferrous-based coating including aluminum using an HVOF device. A ferrous-based wire is fed to the HVOF device to locate a tip end of the wire in a high temperature zone of the device. Jet flows of oxygen and gaseous fuel are fed to the high temperature zone and are combusted to generate heat to melt the tip end. The oxygen is oversupplied in relation to the gaseous fuel. The excess oxygen reacts with and burns a fraction of the ferrous-based feed wire in an exothermic reaction to generate substantial supplemental heat to the HVOF device. The molten/combusted metal is sprayed by the device onto the walls of the cylinder by the jet flow of gases.